

WHAT IS CLAIMED IS:

1. A racing game machine, comprising:
  - a racing track;
  - a traveling field, on which platen dots are provided, extending below the racing track,;
  - a plurality of self-propelled members provided on the traveling field, each self-propelled member including:
    - a first yoke, which constitutes a first linear motor together with the platen dots for propelling the self-propelled member in a first direction on the traveling field;
    - a second yoke, which constitutes a second linear motor together with the platen dots for propelling the self-propelled member in a second direction which is perpendicular to the first direction; and
    - a first magnet provided in an upper portion of the self-propelled member; and
    - a plurality of miniature members, which are provided on the racing track to be raced with each other while being associated with the respective self-propelled members, each miniature member including:
      - front wheels and rear wheels provided on a bottom face thereof for supporting the miniature member on the racing track, the front wheels being provided as caster wheels; and
      - a second magnet provided in a front side of the caster wheels while being magnetically coupled with the first magnet.

1 2. The game machine as set forth in claim 1, wherein ball bearings are  
2 provided on the bottom face of the self-propelled member to assist the  
3 propelling on the traveling field.

1 3. The game machine as set forth in claim 1, wherein each of the first  
2 yoke and the second yoke is formed with three legs provided with coils, to  
3 constitute three-phase linear motors.

1 4. The game machine as set forth in claim 3, wherein a lower end  
2 portion of each leg is split into plural projections each having an identical width  
3 with a width of each of the platen dots.

1 5. The game machine as set forth in claim 2, wherein the ball bearings  
2 are composed of at least three independent ball bearings.

1 6. The game machine as set forth in claim 2, wherein the ball bearings  
2 are supported within an annular retainer formed on the bottom face of the  
3 self-propelled member to constitute a thrust bearing.

1 7. The game machine as set forth in claim 1, wherein nozzles from  
2 which air is blown toward the bottom face of the self-propelled member are  
3 formed on the traveling field to form an air bearing layer between the bottom  
4 face and the traveling field to support the self-propelled member thereon.

8. The game machine as set forth in claim 7, wherein a skirt member is formed on a peripheral portion of the bottom face of the self-propelled member.

9. The game machine as set forth in claim 1, wherein the self-propelled member includes a compressor for blowing compressed air toward the traveling field through nozzles formed on the bottom side thereof, to form an air bearing layer between the bottom face and the traveling field to support the self-propelled member thereon.

10. The game machine as set forth in claim 1, wherein the second magnet is pivotable about a pivot center provided on the bottom face of the miniature member at a front side of the front wheels.

11. The game machine as set forth in claim 1, wherein the miniature member includes a ball bearing provided on the bottom face thereof in the vicinity of the second magnet, for supporting the miniature member on the racing track.

12. The game machine as set forth in claim 1, wherein the second magnet is rotatable about a rotation center provided on the bottom face of the miniature member at a front side of the front wheels.

13. The gaming machine as set forth in claim 2, wherein:  
the ball bearings are made of metal, and  
a conductive layer is formed on the traveling field for supplying power

- 4 to the linear motors of the self-propelled member via the ball bearings.